

## Section 2-6: Simplify Variable Expressions

**By the end of this lesson, you should be able to answer:**

- How do you add, subtract, multiply, and divide to simplify variable expressions?

**Where you might see this in the real world:**

- Sports, finance, photography, fashion, population

Define the following terms:

1. Order of Operations (yes, again!)

It is very important that as we mix and match our operations when dealing with variable expressions that we follow the order of operations. Remember our first step is to deal with all grouping symbols (parentheses, brackets, absolute values, division bars, etc.), working inside those symbols using the order of operations.

Example 1: Simplify.

a.  $5(x + 3) + 2x$

b.  $2x - 5(x - 1)$

c.  $4(x + y) - 7(x - y)$

d.  $2(mn + m) - 5(mn - n)$

We have worked on translating back and forth between word phrases and variable expressions, and this skill is useful in solving real world situations.

Example 2: The ticket prices at Matt Mitarnowski's Googolplex are \$8.00 for regular admission and \$5.50 for students and seniors. For Saturday's first show, 350 tickets were sold. Write and simplify a variable expression for the total admission fees of the tickets for that show.

How many regular admission tickets were sold?

How many student and senior tickets were then sold?

So what was the total?

Example 3: If a page in a book is numbered  $n$ , what is the number of the next page?

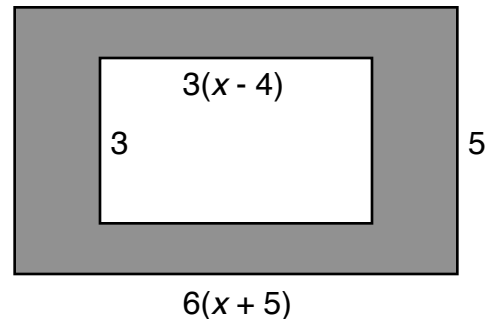
Now, write a variable expression for the following word phrases.

a. Two consecutive pages have a sum of 175.

b. Three consecutive pages have a sum of 768.

We can also use this idea when dealing with areas and perimeters in geometry.

Example 4: Find the area of the shaded region.



Problem Set:

*"I only have good days and better days." - Lance Armstrong*